

09/964,939

01RE098/ALBRP220USA

AMENDMENTS TO THE CLAIMSRECEIVED
CENTRAL FAX CENTER

MAY 17 2006

This listing of claims will replace all prior versions of claims in the application:

Listing of Claims:

1. (Currently amended) A method of controlling a system having at least one motorized pump and an associated motor drive, comprising:
obtaining at least a portion of one of efficiency information, an allowable range, and a system setpoint from prior operation of the system;
selecting a desired operating point within ~~[[an]]~~ the allowable range of operation about ~~[[a]]~~ the system setpoint according to performance characteristics associated with a plurality of components in the system; and
automatically providing a control signal to the motor drive according to the desired operating point.
2. (Currently amended) The method of claim 1, ~~wherein~~ the system comprises a motorized pump system having an electric motor operatively coupled with a pump, and a motor drive providing electrical power to the motor, and ~~wherein~~ the performance characteristics associated with a plurality of components in the system comprises efficiencies of at least two of the motor, the pump, and the motor drive.
3. (Original) The method of claim 2, further comprising obtaining the system setpoint and the allowable range of operation from a user.

09/964,939

01RE098/ALBRP220USA

4. (Currently amended) The method of claim 2, ~~wherein~~ selecting the desired operating point comprises:

correlating at least two of motor efficiency information, pump efficiency information, and motor drive efficiency information in order to derive correlated system efficiency information; and

selecting the desired operating point as the optimum efficiency point within the allowable range of operation according to the correlated system efficiency information.

5. (Canceled)

6. (Original) The method of claim 4, further comprising obtaining at least one of the efficiency information, the allowable range, and the system setpoint from a user.

7. (Original) The method of claim 4, further comprising obtaining at least one of the efficiency information, the allowable range, and the system setpoint from a host computer.

8. (Currently amended) The method of claim 7, ~~wherein~~ the at least one of the efficiency information, the allowable range, and the system setpoint is obtained via a network.

9. (Currently amended) The method of claim 8, ~~wherein~~ the at least one of the efficiency information, the allowable range, and the system setpoint is obtained via wireless communications.

10. (Cancelled)

11. (Currently amended) The method of claim 1, ~~wherein~~ selecting the desired operating point comprises:

correlating component performance information associated with at least two components in the system in order to derive correlated system performance information; and

selecting the desired operating point as the optimum performance point within the allowable range of operation according to the correlated system performance information.

09/964,939

01RE098/ALBRP220USA

12. (Currently amended) The method of claim 11, ~~wherein~~ controlling the system according to the desired operating point comprises providing a setpoint to a controller associated with the system according to the desired operating point.
13. (Original) The method of claim 11, further comprising obtaining at least one of the performance information, the allowable range, and the system setpoint from a user.
14. (Original) The method of claim 11, further comprising obtaining at least one of the performance information, the allowable range, and the system setpoint from a host computer.
15. (Currently amended) The method of claim 14, ~~wherein~~ the at least one of the performance information, the allowable range, and the system setpoint is obtained via a network.
16. (Currently amended) The method of claim 15, ~~wherein~~ the at least one of the performance information, the allowable range, and the system setpoint is obtained via wireless communications.
17. (Original) The method of claim 11, further comprising obtaining at least a portion of one of the performance information, the allowable range, and the system setpoint from prior operation of the system.
18. (Currently amended) The method of claim 11, ~~wherein~~ the component performance information comprises at least one of life cycle cost information, efficiency information, life expectancy information, safety information, emissions information, operational cost information, MTBF information, noise information, and vibration information.

09/964,939

01RE098/ALBRP220USA

19. (Currently amended) The method of claim 18, ~~wherein~~ the system comprises a motorized pump system for pumping fluid, having an electric motor operatively coupled with a pump, and a motor drive providing electrical power to the motor, wherein the component performance information comprises efficiency information related to at least two of the motor, the pump, and the motor drive, and ~~wherein~~ the correlated system performance information comprises cost information related to the system operational cost per unit of fluid pumped.

20. (Currently amended) The method of claim 1, ~~wherein~~ the system comprises a motorized pump system having an electric motor operatively coupled with a pump, and a motor drive providing electrical power to the motor, and ~~wherein~~ the performance characteristics associated with a plurality of components in the system comprises life expectancies of at least two of the motor, the pump, and the motor drive.

21. (Currently amended) The method of claim 1, ~~wherein~~ the system comprises a motorized pump system having an electric motor operatively coupled with a pump, and a motor drive providing electrical power to the motor, and ~~wherein~~ the performance characteristics associated with a plurality of components in the system comprises cost of operation associated with at least two of the motor, the pump, and the motor drive.

22. (Currently amended) The method of claim 1, ~~wherein~~ selecting the desired operating point comprises measuring at least one process variable from a sensor associated with the system.

09/964,939

01RE098/ALBRP220USA

23. (Currently amended) A control system for controlling a process having a pump with an associated motor, the control system comprising:

a motor drive providing electrical power to the motor in a controlled fashion according to a control signal; and

a controller that obtains at least one of efficiency information, an allowable range and a process setpoint from a user via a user interface, the controller further provides ~~providing~~ the control signal to the motor drive according to a desired operating point within an allowable range of operation about a process ~~setpoint, the controller selects~~ setpoint and selects the desired operating point according to performance characteristics associated with a plurality of components in the process.

24. (Currently amended) The control system of claim 23, ~~wherein~~ the performance characteristics associated with a plurality of components in the process comprises efficiencies of at least two of the motor, the pump, and the motor drive.

25. (Currently amended) The control system of claim 23, ~~wherein~~ the controller is adapted to correlate at least two of motor efficiency information, pump efficiency information, and motor drive efficiency information in order to derive correlated process efficiency information, and to select the desired operating point as the optimum efficiency point within the allowable range of operation according to the correlated process efficiency information.

26. (Currently amended) The control system of claim 25, ~~wherein~~ the controller provides the control signal as a motor speed signal to the motor drive according to the desired operating point.

27. (Cancelled)

28. (Currently amended) The control system of claim 25, ~~wherein~~ the controller comprises a network interface operatively connecting the controller with a host computer through a network, and ~~wherein~~ the controller obtains at least one of the efficiency information, the allowable range, and the process setpoint from the host computer via the network.

09/964,939

01RE098/ALBRP220USA

29. (Currently amended) The control system of claim 25, ~~wherein~~ the controller comprises a wireless communication device, and ~~wherein~~ the controller obtains the at least one of the efficiency information, the allowable range, and the process setpoint via wireless communications using the wireless communications device.

30. (Currently amended) The control system of claim 25, ~~wherein~~ the controller obtains at least a portion of one of the efficiency information, the allowable range, and the process setpoint from prior operation of the process.

31. (Currently amended) The control system of claim 23, ~~wherein~~ the controller is adapted to correlate component performance information associated with at least two components in the process in order to derive correlated process performance information, and to select the desired operating point as the optimum performance point within the allowable range of operation according to the correlated process performance information.

32. (Currently amended) The control system of claim 31, ~~wherein~~ the controller provides the control signal as a motor speed signal to the motor drive according to the desired operating point.

33. (Currently amended) The control system of claim 31, ~~wherein~~ the component performance information comprises at least one of life cycle cost information, efficiency information, life expectancy information, safety information, emissions information, operational cost information, MTBF information, noise information, and vibration information.

BEST AVAILABLE COPY

09/964,939

01RE098/ALBRP220USA

34. (Currently amended) A control system for controlling a process having a pump with an associated motor, the control system comprising:

a motor drive adapted to provide electrical power to the motor in a controlled fashion according to a control signal; and

means for providing the control signal to the motor drive according to a desired operating point within an allowable range of operation about a process setpoint; and

means for selecting the desired operating point according to performance characteristics associated with a plurality of components in the process, the performance characteristics comprises efficiencies of at least two of the motor, the pump, and the motor drive.

35. (Currently amended) A control system for controlling a process comprising a having at least one motorized pump system having an electric motor coupled with a pump and an associated motor drive providing electrical power to the motor, comprising:

means for selecting a desired operating point as the optimum efficiency point within an allowable range of operation according to correlated process efficiency information, the correlated process efficiency information is derived from at least two of motor efficiency information, pump efficiency information, and motor drive information; ~~about a process setpoint according to performance characteristics associated with a plurality of components in the process;~~ and

means for providing a control signal to the motor drive according to the desired operating point.

36. (Cancelled)

BEST AVAILABLE COPY

09/964,939

01RE098/ALBRP220USA

37. (Currently amended) A pump control system for automatically operating a pump driven by a motor in a controlled fashion, comprising:

a motor drive providing electric power to operate the motor in a controlled fashion according to a motor control signal; and

a controller comprising a diagnostic component ~~operatively connected to diagnose that~~ diagnoses an operating condition associated with the pump by performing signature analysis of at least one sensor signal from a sensor associated with the pump, wherein the controller further provides the control signal to the motor drive according to a setpoint and a diagnostic signal from the diagnostic component according to the diagnosed operating condition in the pump.

38. (Cancelled)

39. (Currently amended) The control system of claim ~~[[38]]~~ 37, wherein the at least one sensor signal is related to one of flow, pressure, current, noise, vibration, and temperature associated with the pump.

40. (Currently amended) A controller for providing a control signal to a motor drive to operate a motorized pump in a controlled fashion, comprising:

a diagnostic component operatively connected to the pump to diagnose an operating condition associated with the pump;

wherein the controller provides the control signal to the motor drive according to a setpoint and a diagnostic signal from the diagnostic component according to the diagnosed operating condition in the pump, the diagnostic component performs signature analysis on at least one of flow, pressure, current, noise, vibration and temperature associated with the pump.

41. (Cancelled)

42. (Cancelled)

BEST AVAILABLE COPY